Mapping in the Arctic Ocean in Support of a Potential U.S. Extended Continental Shelf

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THE CONVENTION ON THE LAW OF THE SEA
Data Required

- To establish an extended continental shelf a coastal state must demonstrate that region is “natural prolongation” of continental landmass - limits are then determined by:
  - depth and shape of the seafloor (FOS and 2500m contour)
  - the thickness of the underlying sediments (1% line)
  - distances from the territorial sea baselines (350 nm line)

Need to map the seafloor
Formulae Lines:

**Foot of Slope + 60 nmi** - bathy

**Gardiner line** - sediment thickness less than 1% of distance back to FOS - seismic and bathy
Cutoff Lines:

2500 m contour + 100 nmi - bathy
350 nmi from baseline - distance

Constraining the Outer Limit of the Continental Shelf
UNH CCOM-JHC U.S. Law-of-the-Sea Bathymetric Mapping to Date

- Bering Sea 2003
- Marianas 2006 2007
- Arctic 2003 2004 2007 2008 2009
- Gulf of Alaska 2005 2009
- Kingman Reef Palmyra Atoll soon
- Gulf of Mexico 2007
- Atlantic 2004 2008 soon 2005

$> 1,060,000 \text{ km}^2$
Arctic is unique as an ocean basin in that >52% is made up of shelf (geologic)
Five nations having potential extended shelves

From Ron McNab
3 to 5 m deep

central Chukchi Plateau

-380 m

-470 m

ice grooves

λ = ~2 km
H = ~10 m
central Chukchi Plateau pockmarks

200-m diameter
20-m deep

VE = 10x
looking SW